"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 541.515:547.1'118

LEVIN, YA. A., IL'YASOV, A. V., and GOL'DFARB, E. I., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR

"Phosphonium Radical Ambidentity and Chemical Polarization of Phosphorus Nuclei in the Products of Its Reactions"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72, pp 1676-1677

Abstract: During photolysis of acetone, diethylketone, acetaldehyde, and in thermolysis of ditert-butylperoxide, dicyclohexylpercarbonate, lauryl peroxide in dialkylphosphites, chemical polarization of the phosphorus nuclei is observed in $(RO)_2P\text{-}O\text{-}P(O)(OR)_2$ and in $(RO)_2P(:O)\text{-}P(:O)\text{-}(OR)_2$. The appearance of a multiplet effect in the subphosphates due to the spin-spin interaction in the system P-O-P(O) shows that these compounds form by recombination of two phosphine radicals. Concurrent presence of polarized hypophosphate indicates a double reactivity of these radicals: through the oxygen or through the phosphorus. The multiplet effect in the subphosphate corresponds to the recombination of two independently generated phosphone radicals.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 541.515:547.1'118

LEVIN, YA. A., IL'YASOV, A. V., GOL'DFARB, E. I., and VORKUNOVA, YE. I., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR

"Proof of the Existence of Phosphoroanilic Radicals"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72, pp 1673-1674

Abstract: During the thermolysis of di-tertiary butyl peroxide in triphenylphosphite a negative polarization of phosphorus nuclei is observed in the intermediate product -- diphenyl-tert-butylphosphite and in triphenylphosphate. During the thermolysis of benzolazotriphenylmethane in trialkylphosphites a negatively polarized dialkylphenylphosphonate is formed. During the photolysis of CCl_3Br under a mercury lamp in triethyl- or tributylphosphites, concurrently with the negative polarization of phosphorus nuclei in dialkyltrichloromethylphosphonate and dialkylbromophosphate, a strong emission is observed in the starting phosphite. These facts are considered to be sufficient proof for the existence of a stable intermediate phosphoroanilic radical in the reactions cited.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR -

UDC 538.113:541.515:547.63'118

IL'YASOV, A. V., LEVIN, Ya. A., MOROZOVA, I. D., VAFINA, A. A., GOZMAN, I. P., and ZOROATSKAYA, Ye. I., Institute of Organic Chemistry, imeni A. Ye. Arbuzov, USSR Academy of Sciences, Kazan'

"Delocalization of the Unpaired Electron in Phosphorus-Containing Anion-Radicals"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 1, Nov-Dec 1971, pp 108-111

Abstract: It is of current interest whether elements of the third period function as barriers in conjugated systems, or are able to participate in conjugation.

The distribution of spin density in the anion-radical of triphenylphosphine and its oxide were studied. The compounds were prepared by electrochemical reduction. For a more rigorous picture of delocalization of the unpaired electron, completely and partially deuterated Ph_3P and Ph_3PO were synthesized and studied. Dimethylformamide and acetonitrile solutions of the anion-radicals were studied at concentration of ca. $5 \cdot 10^{-3}$ M, using epr spectroscopy.

1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YASOV, A. V., et al., Doklady Akademii Nauk SSSR, Vol 201, No 1, Nov-Dec 1971, pp 108-111

Based on preliminary results, it is concluded that, unlike compounds of elements of the second period, the electron structure of phosphorus anion-radicals cannot be described by a simple π-electron theory; the so-called d-model must be rejected. The concepts of completely delocalized molecular orbitals and multi-center bonds must be used, with allowance for all valence electrons.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

Free Radicals

USSR UDC 541.13+541.515+542.941+661.718.1

IL'YASOV, A. V., KARGIN, Yu. M., LEVIN, Ya. A., MOROZOVA, I. D., MEL'NIKOV, B. V., VARINA, A. A., SOTNIKOVA, N. N., and GALEYEV, V. S., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR Acad. of Sciences

"Electrochemically Generated Free Radicals. 6. The Reduction Mechanism of Certain Organophosphorus Compounds, and the Electron Paramagnetic Resonance Spectra of the Anion Radicals Formed"

Moscow, Izvestiya Akademii Nauk SSR, Seriya Khimicheskaya, No 4, 71, pp 770-776

Abstract: A series of organophosphorus compounds was studied in connection with their electrochemical reduction, using several methods. The electron paramagnetic method was applied in the case of electrochemically generated anion radicals of triphenylphosphine, its oxides, and the diethyl ester of β-styrylphosphosphonic acid.

Graphical data accompanying the paper include classical and commutated polarograms for the various compounds, and electron paramagnetic spectra for free radicals; numerical electrochemical data are given for nine organophosphorus compounds tested.
1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

Free Radicals

USSR UDC 541.13+541.515

IL'YASOV, A. V., KARGIN, Yu. M., LEVIN, Ya. A., and MEL'NIKOV, B. V., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences of the USSR

"Electrochemically Generated Free Radicals. Report 5. Activation Energy of the Current-Determining Process and Subsequent Chemical Reactions"

Moscow, IAN SSSR, Seriya Khimicheskaya, No 9, Sep 70, pp 1,979-1,983

Abstract: A method is proposed for studying the mechanism of an electrochemical process and for a quantitative evaluation of kinetic parameters of the initiated or subsequent chemical reaction by measuring the activation energy of the limiting current in polarography and commutator polarography. Analysis of various special cases for both cathode and anode processes shows that secondary paramagnetic products must be taken into account in interpreting the electron paramagnetic spectra of electrochemically generated anion radicals. The method proposed in this paper was used to study the mechanism of reduction and generation of anion radicals of a number of organophosphorus and carbonyl compounds. The results are to be published in subsequent reports.
1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 541.13:541.515:543.422.27

IL'YASOV, A. V., KARGIN, YU. M., MOROZOVA, I. D., CHERNOKAL'SKIY, B. D., VAFINA, A. A., MEL'NIKOV, B. V., GEL'FOND, A. S., MUKHTAROV, A. SH., and GALYAMETDINOV, YU. G., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR, and Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Electrochemically Generated Free Radicals. 9 Communication. Reduction of Some Nitrophenylarsine Derivatives and EPR Spectra of Their Anion Radicals"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 72, pp 2174-2178

Abstract: The mechanism of polarographic reduction of nitrophenyldiethylarsines and their oxides and sulfides in an aprotic medium was studied. These compounds exhibit two reduction waves, the first one corresponding to a one-electron wave, the process being reversible. The second wave is typical of a 3e-process. A diagram for the sequential chemical processes of these compounds after the capture of second electron has been proposed. Both waves represent a stepwise oxidation of the unstable dianion of the substituted nitrobenzene; the phenyl ring -- arsenic system remains untouched in this process. Novel organoarsine anion radicals have been obtained by electrochemical reduction and studied by the EPR method. Delocalization of the unpaired electron in these anion

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YASOV, A. V., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 72, pp 2174-2178

radicals has been investigated analyzing possible reasons for a considerable decrease of the spin density on the arsenic atom during the transition from tetracoordinated arsenic atom of the anion radicals to a tri-coordinated one.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

GAL'PERIN, L. N., IL'YASOV, A. Z., and LEMBERG, I. Kh., Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR, Institute of Nuclear Physics of the Academy of Sciences Uzbek SSR

"Probabilities of M1-Transitions Between Levels of the Ground Rotational Band of Rare Earth Nuclei"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 8, Aug 70, pp 1644-1645

Abstract: Calculations of the cascade Coulomb excitation of levels of the Tb-159, Dy-161, Dy-163, Er-167, Yb-171, Yb-173, and Lu-175 nuclei are presented. The values of B(E2) between levels of the ground state necessary to obtain $B(M1)_{exp}$ were calculated on the basis of data on quadrupole moments of the ground states of these nuclei given by Elbek. A comparison of experimental and theoretical data on B(M1) showed that within the limits of the combined errors the experimental data are satisfactorily described by the generalized model.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

AN0032400

UR9022

AUTHOR-- IL,YASOV, I.

TITLE-- GLASS IMPROVES THE STRENGTH OF METALS

NEWSPAPER-- SOVETSKAYA ROSSIYA, MARCH 28, 1970, P 4, COLS 1-6

ABSTRACT-- THE ARTICLE BRIEFLY REVIEWS THE ACTIVITIES OF THE PROJECT LABORATORY OF THE MOSCOW TECHNOLOGICAL INSTITUTE OF THE MEAT AND MILK INDUSTRY, HEADED BY N. F. KAZAKOV.

A PHOTOGRAPH IS GIVEN WHICH SHOWS OPERATORS V. M. SHAROV, NIGHT SCHOOL STUDENT OF THE MVTU, AND V. P. MEL,NIKOV, AND SECTION HEAD N. V. URUSOV.

SOME OF THE WELDING MACHINES DEVELOPED BY THE LABORATORY HAVE BEEN EMPLOYED AT A MOSCOW PLANT "KALIBR".

19700670

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

AN0032400

UR9022

AUTHOR-- IL,YASOV, I.

TITLE-- GLASS IMPROVES THE STRENGTH OF METALS

NEWSPAPER-- SOVETSKAYA ROSSIYA, MARCH 28, 1970, P 4, COLS 1-6

ABSTRACT-- THE ARTICLE BRIEFLY REVIEWS THE ACTIVITIES OF THE PROJECT LABORATORY OF THE MOSCOW TECHNOLOGICAL INSTITUTE OF THE MEAT AND MILK INDUSTRY, HEADED BY N. F. KAZAKOV.

A PHOTOGRAPH IS GIVEN WHICH SHOWS OPERATORS V. M. SHAROV, NIGHT SCHOOL STUDENT OF THE MVTU, AND V. P. MEL,NIKOV, AND SECTION HEAD N. V. URUSOV.

SOME OF THE WELDING MACHINES DEVELOPED BY THE LABORATORY HAVE BEEN EMPLOYED AT A MOSCOW PLANT "KALIBR".

19700670

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--VOLUMETRIC PROPERTIES OF MELTS OF CADMIUM IODIDE CADMIUM CHLORIDE, THALLIUM BROMIDE CADMIUM BROMIDE, AND THALLIUM CHLORIDE CADMIUM CHLORIDE

AUTHOR-(02)-ILYASOV, I.I., BARSEGOV, O.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1426-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--VOLUMETRIC ANALYSIS, SPECIFIC DENSITY, MOLTEN CHLORIDE, IODIDE, BROMIDE, CADMIUM CHLORIDE, THALLIUM CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1396 STEP NO--UR/0078/70/015/005/1426/1427

CIRC ACCESSION NO--AP0135070

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

2/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0135070
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DIAGRAM OF D. AND EQUIV. VOLS. OF THE TITLE SYSTEMS IS CONSTRUCTED. THE DEVIATION FROM LINEARITY OF THE EXPTL. CURVES IS DUE TO COMPLEXING IN THE SYSTEMS. FACILITY: ROSTOV.-NA-DONU PEDAGOG. INST., ROSTOV-ON-DAN, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--NA, CS, RB PARALLEL TO CL SYSTEM -U-

AUTHOR-(03)-LAGUTOVA, R.P., ILYASOV, I.I., VOLCHANSKAYA, V.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1429-30

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SOLID SOLUTION, CESIUM CHLORIDE, RUBIDIUM CHLORIDE, PHASE DIAGRAM, IMPURITY LEVEL, SODIUM CHLORIDE, CHEMICAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1377 STEP NO--UR/0078/70/015/005/1429/1430

CIRC ACCESSION NO--AP0135071

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135071

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STABILITY OF BINARY SOLID SOLNS. OF THE TITLE SYSTEM UNDER THE EFFECT OF A 3RD COMPONENT (NACL) WAS DETD. A PHASE DIAGRAM OF 7 CROSS SECTIONS OF THE SYSTEM IS CONSTRUCTED. FACILITY: ROSTOV.-NA-DONU FILIAL ZAOCH. INST. SOV. TORG., ROSTOV-ON-DON, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

ILYASOV, L.V.

AUTOMATIC GAS DETECTORS

JPRS 61505

18 March 1974

AUTOMATIC GAS DETECTORS

Translation of Russian-language book by N. G. Farzane and L. V. Ilyasov, Avtomaticheskiye Detektory Gazov, 1972, signed to press 3 March 1972, Energiya, Moscow, 168 pages, UDC 543.544.

CONTENTS

	PAGE
FOREWORD	1
CHAPTER 1: Classification and Basic Characteristics of Automatic Gas Detectors	4
CHAPTER 2: Physical Detectors	13
CHAPTER 3: Physico-Chemical Detectors	52
CHAPTER 4: Equisensitive Detectors	70
CHAPTER 5: Special and Combined Detection Methods	80
CHAPTER 6: Application of Gas Detectors for Automatic Measurement of Physico-Chemical Properties and Composition	88
CHAPTER 7: Methods of Calibrating Automatic Detectors	104
BIBLIOGRAPHY	126

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

ANNOTATION

Automatic gas detection systems, which are used extensively at the present time in the design of various automatic gas analyzers, are generalized and discussed in this book. Automatic gas detectors that are sensitive to density, viscosity, heat of combustion, dielectric constant, detectors based on various effects of ionization of gases, optical, acoustic and other detection devices, are described in detail.

The problem of the development of equisensitive detectors for gas-chromatographic analyzers is elevated and examined for the first time in this book.

Aspects of the application of automatic gas detectors in certain new fields of automatic analytical control are examined.

In addition, new methods of calibrating automatic detection systems are discussed at length.

This book is intended for scientists and engineers who are interested in the development of automatic gas analysis.

L. A. Buyanovskiy, Editor
Ye. N. Sal'nikov, Editor-in-Chief
N. A. Galanchevo, Technical Editor
G. G. Zhelatova, Proof Reader

Circulation - 4,000 copies

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

AA0046278 Ilyasov, L. V.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

241085 GAS DENSITY PULSE PICKUP consisting of gases preparation unit (1), the pickup unit (2), measurement and correcting the measurement circuit zero level unit (3), automatic compensation recorder (4) and a control unit (5).

1/10

The gas preparation unit (1) supplies the density pickup with air, carrier gas and the analysed gas. It comprises three similar circuits (6) consisting of a reducer with a filter (7), pressure gauge (8), throttle (9) for supply adjustment, and a rotameter (10) for consumption measurement. A pneumatic valve (11) stops the analysed gas flow shortly before sample collection in order to equalise the gas pressure with the atmospheric pressure. The instrument pickup (2) consists of a measurement unit (12), hydraulic resistance (13) and a measuring out device (14). The unit (12) is made of a tube of 6 mm internal dia. and 350 mm height. Air is supplied to the outer tube centre; its flow is maintained constant. The carrier gas is supplied to the middle tube centre from the hydraulic resistance (13).

1/3

21

19781416

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

AA0046278

The supplied gases leave the unit through horizontal pipes. Sensing elements of a differential thermo-anemometer are placed in the horizontal pipes.

The measurement and correcting unit comprises an imbalance bridge (22) with resistors (23-25), whose two other arms are the thermoanemometer sensing elements (26,27), supplied for a stabilized voltage source (28). The bridge (22) automatic zero setting circuit (29) consists in turn of a phase sensitive amplifier (30), reversible motor (31), relay supply source (32) and d.c. relays (33,34).

13.3.67 as 1139292/26-25. FARZANE.N.G.et alia. (12.8.69) Bul 13/1.4.69. Class 421. Int.Cl.G Qln.

AUTHORS: Farzane, N. G.; Ilyasov, L. V.

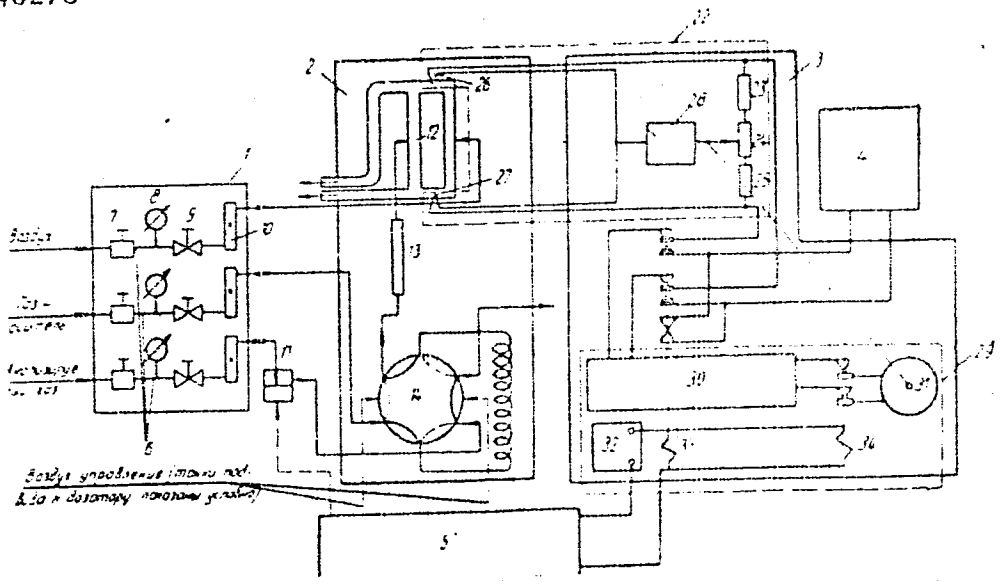
2/3

19781417

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

AA0046278



3/3

19781418

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR UDC: 621.373:530.145.6

YELOV, V. V., IL'YASOV, R. Sh., MOROZOV, V. P., ORLOV, B. V., POL'SKIY, Yu. Ye.

"A Transistorized Oscillator for Excitation of a Ring-Type Gas Laser"

Tr. Kazan. aviats. in-ta (Works of the Kazan' Aviation Institute), 1970, vyp. 104, pp 116-122 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12D199)

Translation: High-frequency pumping oscillators which operate in the 3-100 MHz frequency range are most frequently used for activating a gas laser. As a rule, these oscillators are based on vacuum tubes. With the development of Soviet high-frequency power transistors, it has become possible to make a miniaturized economic pumping oscillator. This paper describes a transistorized oscillator designed for excitation of three gas-discharge tubes on a frequency of 5 MHz with relative frequency instability of 2×10^{-4} with an output power of 50×3 W, the time for reaching the working mode being no more than 50 msec. The gas laser emission level is stabilized by using negative feedback with respect to the emission of the laser. The power level for excitation of the gas-discharge tubes in a ring laser is continuously variable from P_{max} to 0.3 P_{max}.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

UDC 669.14.018.45:539.12.04

USSR

ILYASOV, V. M., BETEKHTIN, V. I., and VOTINOV, S. N., Institute of Physics of Metals of the Academy of Sciences USSR

"Durability and Creep of Irradiated Metals"

[Part of the paper was presented by the authors at the Symposium of Radiation Damage in Reactor Materials at the International Atomic Energy Agency, Vienna, 2-6 Jun 1969]

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 4, Apr 71, pp 765-772

Abstract: The durability (τ) and creep (ν) of Al, Ni, and Cu, subjected to neutron irradiation of 10^{22} n/cm^2 (E > 1 Mev), were investigated on 0.1-mm-thick plane specimens annealed at 400°C (Al), 600°C (Cu), and 750°C (Ni). It is shown that irradiation brings about a strengthening of Al by increasing τ and decreasing V and a weakening of Ni and Cu by decreasing τ and increasing V. The analysis of coefficients of two functions characterizing τ and ν in relation to the stress and temperature of the investigated materials shows that the effect of neutron irradiation depends on structural conditions

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

ILYASOV, V. M., et al., Fizika Metallov i Metallovedeniye, Vol 31, No 4, Apr 71, pp 765-772

under which disintegration and creep processes develop and not on changes of the nature and mechanism of the processes. Eight illustr., one table, two formulas, twenty biblio. refs.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 621.372.413

ILYASOV, V.P.

"Thermostabilization Of Ferrite Resonators"

Vestn. Kiyev. politekhn. in-ta. Ser. radiotekhn. i elektroakust. (Bulletin Of The Kiev Polytechnical Institute. Radio Engineering And Electroacoustics Series), 1971, No 8, pp 35-36 (from RZh--Radiotekhnika, No 9, Sept 1971, Abstract No 9B117)

Translation: The construction is described of a microthermostat located in a microwave transmission line. The temperature of a ferrite resonator placed in the microthermostat is maintained at a constant level during a change of the temperature of the environment and also during a change of the temperature of the ferrite resonator, because of heating by the absorbed power. The results are presented of an experimental check of the method of thermostabilization proposed. 2 ill. 2 ref. Summary.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC: 547.947.1

VACHNADZE, V. Yu., MALTSKOV, V. M., IL'YASOVA, Kh. T.; MUDZHIRI, K. S., YUNISOV, S. Yu. "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials, Uzbek SSSR Academy of Sciences; Institute of Pharmacochemistry imeni I. G. Kutateladze, Georgian SSR Academy of Sciences

"Qualitative Characteristics of Alkaloids of Some Species of the Genus Vinca"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1973, pp 72 76

Abstract: A comparative study is made of qualitative color reactions of 38 indole alkaloids with the reagents ceric ammonium sulfate and ferric chloride in thin layer analysis on silicagel G and silufol to determine the relation between chemical structure and the type of alkaloid coloring. The alkaloid color observed after 24 hours of contact with the reagents was the criterion. The results of the study show the feasibility of predetermining the principal chromophore of the alkaloids (α-methylenindoline, indoline, indole or hydroxyindole) according to color reactions with ceric ammonium sulfate and ferric chloride.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 547.944/1

IL'YASOVA, Kh. T., MALIKOV, V. M., and YUNUSOV, S. Yu., "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials, Academy of Sciences of the Uzbek SSR

"11-Hydroxypleiocarpamine -- a New Alkaloid from Vinca Erecta"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1970, pp 717-719

Abstract: A study of the aerial part of Vinca erecta Rgl. et Schmalh. collected 1-15 June 1965 near Sagyrdasht in the Tadzhik SSR during the fruit-bearing phase showed that the alkaloid sum in this plant is 0.53%. The sum was separated into phenol and non-phenol parts. Vincamine, vincanine, vinervinine, ervamine and aquammicin were isolated from the nonphenol fraction. The phenol sum yielded vincanidine, aquammine and a base (I) with a melting point of 228-229°C. This base dissolves readily in alcohol, chloroform, methanol, acetone and alkalis, and dissolves poorly in ether and benzene. Spectral and chemical analysis revealed that this alkaloid is a hydroxyl derivative of pleiocarpamine first isolated from the plant Pleiocarpa mutica Benth. By analogy with other alkaloids of similar structure, position 11 is assumed most likely for the hydroxyl group, and the structure of 11-hydroxypleiocarpamine (I) is proposed.
1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

[redacted]; KRIVOLUTSKIY, D. A.; Candidates of Biological Sciences

Moscow, Radioekologiya (Radioecology), "Znaniye," 1971, 32 pp

Translation: Problems of radioecology and the migration of radioactive isotopes in nature are discussed. Greatest emphasis is placed on the effect of radioactive contamination on the external surroundings, on some segments of the population, and on animal and plant associations. Problems of the effect of ionizing radiation on the evolutionary processes of living organisms and methods for preventing the introduction of radionuclides into food products are examined.

Table of Contents

	Page
Introduction	3
Short Discussion of Radioactive Decay and Radioactivity in the Environment	9

1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

ILYENKO, A. I., et al, Radioekologiya, "Znaniye," 1971, 32 pp

Radioecology of Individuals	14
Radioecology of Populations	19
Radioecology of Associations	24
Evolutionary Aspects of Radioecology	29
Bibliography	32

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 591.69-9-542.2

IL'YENKO, A. I., Institute of Evolutionary Morphology and Ecology of Animals, Academy of Sciences USSR

"Infestation of Small Mammals With Gamasid Ticks on Plots Contaminated With Strontium 90"

Moscow, Zoologicheskiy Zhurnal, No 2, 1971, pp 243-246

Abstract: The concentration of strontium 90 was studied in the skeletons of four rodent species (Apodemus sylvaticus, Apodemus agrarius, Clethrionomys rutilus, Microtus oeconomus) trapped on ground artificially contaminated with the radioisotope in relation to the degree of infestation with gamasid ticks. The degree of infestation of all four species was found to be higher than on the control plots. The older animals were much more infested on both contaminated and uncontaminated plots than the younger ones. The intensity of infestation of rodents caught on the contaminated plots and the density index of ticks on the animals increased with the concentration of the radioisotope and the dose rate. Ionizing radiation from strontium 90 incorporated into the skeleton of older mice weakens their resistance to ectoparasites.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--UNEVEN DISTRIBUTION OF THE CONCENTRATION OF RADIOACTIVE STRONTIUM IN FIELD MICE POPULATIONS -U-

AUTHOR--ILYENKO, A.I.

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA 1970, 10(1), 151

DATE PUBLISHED----------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STRONTIUM ISOTOPE, MOUSE, ANIMAL PHYSIOLOGY, NORMAL DISTRIBUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1842 STEP NO--UR/0205/70/010/001/0151/0151

CIRC ACCESSION NO--AP0127252

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127252

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LEVELS OF PRIME90 SR IN FIELD MICE (MICROTUS AGRESTIS) LIVING ON A 1-HA FIELD UNEVENLY CONTAMINATED WITH PRIME90 SR CORRELATED POS. WITH THE LEVEL IN THE PLANTS.

FACILITY: INST. EKOL. MORFOL. EKOL. ZHIVOT. IM. SEVERTSOVA, MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR UDC 533.9

ATAMANOV, N. S., ZALKIND, V. M., ZYKOV, V. G., IL'YENKO, B. P., LATSKO, Ye. M., and TOLOK, V. T., Physicotechnical Institute of the Academy of Sciences UkrSSR, Khar'kov

"Capture of Plasma Injected Into an Injector-Divertor Device of a Stellarator in the Case of a Short- and Long-Term Modulation of the Confining Magnetic Field"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 17, No 3, Mar 72, pp 368-371

Abstract: The experimental investigation of the capture of plasma by the magnetic field of an injector-divertor device of a stellarator is described. The capture of the plasma was investigated by modulation durations of the confining magnetic field lesser and greater than the duration of plasma injection. By the use of a short-term pulse of the counter magnetic field, the forward part of the plasma flux, which is more valuable for the injection, can be trapped and, in the meanwhile, the rear part will split off by entering into the injection chamber. The length of the plasma flow captured in the trap can be controlled by changing the pulse duration of the magnetic field opposed to the field of the trap. The results are discussed by reference to an oscillogram of the probe saturation current of the captured plasma and dependence of the total number of captured charged particles and the density of captured plasma on the counter magnetic field intensity. Four illustr., six bibliog. refs.
1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 616.2-036.11-022.14

IL'YENKO, V. I., PLATONOV, V. G., GORDON, M. A., ANTONOV, V. S., PELYAYEVA, N. M. and ANTIPOVA, M. R., All-Union Scientific Research Institute of Influenza, Ministry of Public Health USSR, Leningrad

"Frequency of Development of Associated Infections Accompanying Acute Respiratory Diseases"

Moscow, Voprosy Virusologii, No 1, 1973, pp 82-86

Abstract: Incidence and characteristics of multiple infections were studied among 4,250 patients with clinically diagnosed influenza or acute respiratory disease. Out of 40% of these, for which the etiology had been established, 12.6% had associated infections, the percentage being somewhat higher for hospitalized than for ambulatory patients, but no seasonal variation was found. Analysis of the incidence of associated infections with respect to disease caused by particular pathogens indicated that most (41.7%) associated infections occurred among patients with para-influenza type 2 and least (12%) with influenza type B. Most associated infections (82%) were caused by influenza virus, particularly during epidemics. When influenza virus was not involved, Mycoplasma pneumoniae was encountered most frequently (56.7%). Such multiple infections were normally found to produce more severe symptoms.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 541.14:661.882.2

IL'YENKO, V. S., UVAROV, A. V., and MIL'KO, V. I., All-Union Scientific Research and Design Institute of Titanium, Zaporozh'ye

"Determination of the Photochemical Activity of Pigmented Titanium Dioxide by the Method of Electron Paramagnetic Resonance"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 9, 1973, pp 1089-1090

Abstract: In this article a method has been developed for the spectral analysis of pig iron on the amount of impurities-modifiers of Bi, Sb, Pb, Sn, Al, Ti, Zn, V, Ce, and Cu. The ranges of detection are from 0.001 to 1.0%.

1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YENKO, V. S., et al., Zavodskaya Laboratoriya, Vol 39, No 9, 1973, pp 1089-1090

The table compiled by the authors gives a comparison of various samples as pertains to the results of determining the concentration of Ti^{3+} ions.

Since the sensitivity of electron paramagnetic resonance spectrometers is high it is possible to analyze samples of titanium dioxide with a low photochemical activity.

The article contains 1 table and 11 bibliographic references.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

UDC 612.85:598.2

USSR

IL'YICHEV, V. D., GOLUBEVA, T. B., ANISIMOV, Ye. Ye.

"Electrophysiological Characteristics of the Acoustic Analysor of Birds. II. Medulary Acoustic Nuclei and the Cochlea"

Moscow, Biologicheskiye Nauki, Vol 13, No 7, 1970, pp 31-43

Abstract: A review is presented of studies conducted by many authors on the various potentials and characteristics of the acoustic apparatus. It is suggested that, in order to develop adequate research methods, the work of histologists and electrophysiologists should be unified.

Entered 27/XII 1968

Chair of Vertebrate Zoology, Moscow State University im. M. V. Lomonosov

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 629.23.56-843.6

VOL'FENZON, M.N., IL'YIN, A.G., FEDYUNYAYEV, A.M., ZAKHAROV, G.A., SPIVAK, A.Ya.

"The Power Plant in Tankers of the 'Mangyshlak' Type"

Abstract: In the article are presented the composition and a general description of the ship power plant for twin-screw tankers of the 'Mangyshlak' type. 2 figures, 1 photographic illustration.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

AA0043335 ILYINSKIY G.V. UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243140 TRANSISTOR AMPLIFIER FOR ELECTROCARDIOGRAPH consists of differential circuit of single-stage amplifiers and two-plate switch is fitted with two emitter repeaters with a conductivity contrasting with the conductivity of the amplifier triodes whose bases are connected with the emitters of the amplifier triodes, while the emitters are connected to the two-plate switch. This reduces the channels' cut-off time during switching over.

23.3.68 as 1227353/31-16.G.V.ILYINSKIY(26.9.69)Bul 16/5.5.69. Class 30a. Int.Cl.A 61b.

2

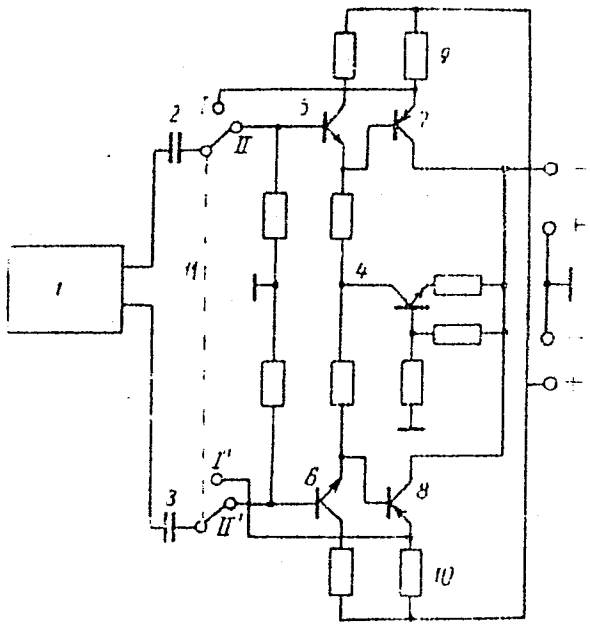
1/2

19761561

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

AA0043335



2/2

19761562

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

Welding

USSR UDC 621.791.011.053

IL'YSEVICH, S. A., and GORPINCHENKO, V. M., Central Scientific Research Institute of Construction Design imeni V. A. Kucherenko

"Fatigue Strength of Joints in Tubular Welded Constructions"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 70, pp 32-36

Abstract: The results are given for experimental investigations of the fatigue strength of tubular welded constructions. The purpose of these investigations was to obtain data for calculating the strength of tubular welded constructions taking into account actual working conditions. The investigations were conducted in two stages. The first involved fatigue strength studies of tubular joints in relation to a series of geometrical characteristics. The second involved determination of the fatigue of full-size typical tubular welded joints. A detailed description is given of the experimental technique and types of welded joints. Full separation of the extended angle brace was the criterion of fatigue failure of a joint. The fatigue strength of K-shaped joints with cylindrical components (KTs-1 series) was approximately twice that of K-shaped joints with fully flattened ends (KL-1 series).

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 612.821.3

IL'YuCHENOK, R. Yu., Department of Neurochemistry and Physiology of Memory, Institute of Physiology, Siberian Branch of the Academy of Sciences USSR, Novosibirsk

"Analysis of the Participation of Cholinergic Mechanisms in the Formation of Memory Traces"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, No 2, Mar/Apr 73, pp 315-322

Abstract: The participation of cholinergic mechanisms in registration, consolidation, and retrieval of memory traces was investigated by means of timed injections of anticholinergic and anticholinesterase drugs. The findings indicate that the amnesic effect of anticholinergic drugs is not due to their action in the registration stage. These agents exert their crucial effect in the early stage of consolidation of memory traces by blocking cholinergic synapses in the limbic system. Under normal conditions, formation of memory traces is facilitated by contrasting neuronal patterns or by blocking retroactive interference. This effect can be achieved through cortical inhibition by nonspecific systems: the limbic-cortical and the reticulo-cortical. Cholinergic mechanisms are involved in this type of inhibition as well as in inhibition within the limbic system.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 612.821.6

IL'YUCHENOK, R. Yu.

Farmakologiya povedeniya i pamyati (Pharmacology of Behavior and Memeory), Novosibirsk, "Nauka," 1972, 222 pp

Translation: Annotation: The monograph reviews the world literature and analyzes the effect of various groups of pharmacological agents on behavior and different stages of memory. It presents original data on the involvement of the central cholinergic structures in the mechanisms of emotional behavior and memory. It examines the role of the limbic and ascending reticular activating systems in regulating the formation of memory.

The book is aimed at physiologists, pharmacologists, psychiatrists, neurologists, and university and medical institute students.

Contents

	Page
Introduction	3
PART I. PHARMACOLOGY OF BEHAVIOR	7
Chapter 1. Agents that affect the choline receptors of the brain	7

1/6

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YUCHENOK, R. Yu., Farmakologiya povedeniya i pamyati, Novosibirsk, "Nauka," 1972, 222 pp

	Page
Acetylcholine and carbachol	7
Anticholinesterase agents	12
Cholinomimetic agents	20
Muscarine (M-) cholinomimetic agents	20
Nicotinic (N-) cholinomimetic agents	23
Anticholinergic agents	25
Muscarine anticholinergic agents	25
Agents that block the nicotinic choline receptors	34
Agents that affect the nicotinic and muscarine choline receptors	35
Chapter 2. Agents that affect the metabolism, deposition, and reception of catecholamines and serotonin	41
Norepinephrine and epinephrine	41
Norepinephrine precursors - 3,4-dihydroxyphenylalanine and dopamine	45
Serotonin and mexamine	48
Serotonin precursor - 5-hydroxytryptophan	50

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YUCHENOK, R. Yu., Farmakologiya povedeniya i pamyati, Novosibirsk, "Nauka," 1972, 222 pp

	Page
Agents that affect the synthesis of amines	52
α-Methyl-n-tyrosine	52
α-Methyl-DOPA	53
Teturam [disulfiram]	53
n-Chlorophenylalanine	55
Mono-aminoxidase inhibitors	56
Agents that affect the deposition of amines	60
Reserpine	60
Tetrabenazine	64
α-Methyl-m-tyrosine	64
Chapter 3 - Agents that act in the region of the adrenergic synapses	66
Psychomotor stimulants	68
Amphetamine	68
Pervitin (Methamphetamine Hydrochloride)	73
Piridrol (Pipradrol)	74

3/6

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YUCHENOK, R. Yu., Farmakologiya povedeniya i pamyati, Novosibirsk, "Nauka," 1972, 222 pp

	Page
Meridil (Methylphenidate)	75
Neuroleptic agents (major tranquilizers)	76
Phenothiazine derivatives	76
Butyrophenone derivatives	84
Hallucinogens (psychotomimetics)	86
Chapter 4. Various neurotropic agents	90
Soporifics	90
Sedatives - bromides	95
Analgesics	95
Minor tranquilizers	99
Central nervous system stimulants	101
Strychnine	101
Caffeine	102
Antidepressants	103
PART II. PHARMACOLOGY OF MEMORY	111

4/6

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YUCHENOK, R. Yu., Farmakologiya povedeniya i pamyati, Novosibirsk, "Nauka," 1972, 222 pp

	Page
Chapter 5. Effect of drugs on the memory mechanisms proper	111
Agents that affect the conduction and circulation of nerve impulses in neuronal circuits	111
Anticholinergic agents	111
Anticholinesterase agents	123
Stimulants	126
Agents that affect RNA and protein synthesis	135
Effect of RNA	136
Effect of enzymes that destroy RNA	137
Memory "transport"	138
Stimulation of RNA and protein synthesis	141
Blocking of nucleic acid synthesis	143
Blocking of protein synthesis	145
Chapter 6. Effect of drugs on the mechanisms that regulate memory	150

5/6

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YUCHENOK, R. Yu., Farmakologiya povedeniya i pamyati, Novosibirsk, "Nauka," 1972, 222 pp

	Page
Role of emotions in memory formation and the effect of drugs	150
Role of the ascending reticular activating system in memory formation and the effect of drugs	164
CONCLUSION	173
BIBLIOGRAPHY	180

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR UDC 615.78+612.821.6

IL'YUCHENOK, R. Yu. and ABULADZE, G. V., Institute of Physiology, Academy of Sciences USSR, Siberian Branch, Novosibirsk

"Neurochemical Aspects of the Formation of Electrographic and Behavioral Reactions"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, No 6, 1972, pp 1,133-1,141

Abstract: The literature and the authors' recent experiments on the role of neurochemical mechanisms in the production of electrographic and behavioral reactions of laboratory animals are reviewed. The adreno-, cholino- and serotoninoreactive structures of the brain trigger the activity of the reticular formation, hypothalamocortical, and specific sensory systems and participate in the formation of memory traces. The involvement of the various chemoreactive structures in the specific and nonspecific systems is deduced from an analysis of their evoked and spontaneous electrical activity. Both the reticular formation and the hypothalamus can be stimulated pharmacologically. The effect of adrenergic drugs on the conduction of afferent spike activity is mediated through the reticular formation. The cortical cholinergic structures stimulate hypothalamic and reticular responses and evoked potential in the cortex. Cholinergic structures are involved in the formation and reproduction of memory

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YUCHENOK, R. Yu. and ABULADZE, G. V., Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, No 6, 1972, pp 1,133-1,141

traces. Serotonin plays an important part in the formation and preservation of conditioned reflexes. An optimum level of activity of the serotoninergic structures and of serotonin metabolism is needed for the normal course of the memory process.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 612.821.2

IL'YUCHENOK, R. YU., and VINNITSKIY, I. M., Institute of Physiology of the Siberian Department, Academy of Sciences USSR, Novosibirsk

"The Effect of High-Frequency Stimulation of the Amygdaloid Complex on Memory in Rats"

Moscow, Zhurnal Vysshey Nernnoy Deyatel'nosti imeni I. P. Pavlova, Vol 21, Vyp 6, Nov/Dec 71, pp 1,220-1,222

Abstract: In view of the important role of the limbic system, especially the amygdaloid complex, in the formation of memory traces, it was decided to study the effect of direct stimulation of the basolateral nuclei of this complex. Accordingly, a passive avoidance reaction was developed in 33 control and 12 experimental rats, and then the latter were subjected to high-frequency stimulation of the amygdaloid complex. The conditioned response was present in 23 of the control rats after 1, 2, and 7 days, but in none of the experimental rats at any of these times. Retrograde amnesia, such as occurred here, has also been known to arise during convulsive activity of the neuronal structures of the amygdaloid complex and the sensorimotor and visual areas of the brain. This possibility was eliminated in the present case by a study of the bioelectric activity of these regions. Hence, high-frequency stimulation of the amygdaloid complex may be assumed to interfere with the regulatory

1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YUCHENOK, R. YU., and VINNITSKIY, I. M., Zhurnal Vysshey Nervnoy Deyatel'-nosti imeni I. P. Pavlova, Vol 21, Vyp 6, Nov/Dec 71, pp 1,220-1,222

mechanisms of memory that are responsible for single-stage learning, probably by disrupting the consolidation of memory traces.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YUCHENOK, R. YU., Institute of Physiology, Siberian Branch of the Academy of Sciences USSR

"Some Aspects of the Pharmacology of Memory"

Moscow, Aktual'nyye Problemy Farmakologii i Farmatsii, pp 37-43

Abstract: The various factors involved in the processes of memory formation -- recording, consolidation, and reproduction, and the possibility of inducing changes in these processes with the use of pharmacological preparations, are discussed in the article. Memory formation to a large degree is conditioned by structural changes in the synapses, facilitating the transmission of information impulses over the neuronal chain system, with the activated cholinergic mechanism playing a major role. Other important factors are the enhanced synthesis of nucleic acids and proteins, and the activated ascending reticular activating system. Investigations conducted to determine the possibility of influencing these memory processes with the use of pharmacological preparations such as strychnine, picrotoxin, and corazole established that these stimulants perceptibly affect cholino-

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YUCHENOK, R. YU., Aktual'nyye Problemy Farmakologii i Farmatsii, pp 37-43

reception and the acetylcholine-cholinesterase system. When these preparations are administered in doses short of spasm-producing doses, they hasten the process of consolidation of memory traces, either by strychnine blocking postsynaptic inhibition, picrotoxin blocking presynaptic inhibition, or corazole increasing postsynaptic excitation. Synaptic transmission can be influenced also by stabilizing acetylcholine synthesis with the use of acetylcholinesterase substances and by blocking the cholinergic receptor with anticholinergic preparations. Excessive acetylcholine production, however, can induce a synaptic block interfering with impulse transmission, thereby impairing recording and consolidation. It was established also that stimulants can in some instances also produce an amnesic effect. The mechanism inducing this effect has not been adequately studied as yet. It is also pointed out that memory processes can

2/3

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YUCHENOK, R. YU., Aktual'nyye Problemy Farmakologii i Farmatsii, pp 37-43

be influenced also by such factors as the fear reaction and the emotional state of an animal and that all of the above factors must be taken into consideration in the search for pharmacological preparations affecting memory recording and consolidation.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--PARTICIPATION OF CHOLINERGIC BRAIN STRUCTURES IN THE MECHANISM OF EMOTIONAL MEMORY -U-

AUTHOR-(02)-ILYUCHENOK, R.YU., CHAPLYGINA, S.R.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL VYSSHEY NERVNOY DEYATEL'NOSTI, 1970, VOL 20, NR 1, PP 176-184

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EMOTION, MEMORY, DOG, BRAIN, CHOLINOLYTIC, CHLORPROMAZINE, PSYCHOLOGIC CONDITIONING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1961/0732 STEP NO--UR/0247/70/020/001/0176/0184

CIRC ACCESSION NO--AP0052186

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 026

CIRC ACCESSION NO--AP0052186

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE OF A BLOCKADE OF THE BRAIN CHOLINORECEPTORS ON EMOTIONAL MEMORY BASED ON FEAR REACTION, HAS BEEN STUDIED ON THIRTEEN DOGS. SMALL DOSES OF MUSCARINE ANTICHOLINERGIC DRUGS ADMINISTERED IN 10 TO 15 MINUTES AFTER THE ELABORATION OF A CONDITIONED DEFENSIVE REACTION CONTRIBUTE TO THE DISAPPEARANCE OF THE EMOTIONAL COMPONENT OF THE REACTION ONLY ON THE DAY OF THE DRUG ADMINISTRATION. ITS STABLE DISAPPEARANCE REQUIRES A REPEATED INJECTION OF THE SAME DOSES FOR SEVERAL DAYS. CONDITIONED EMOTIONAL FEAR REACTION ELABORATED TWO TO THREE MONTHS BEFORE IS STEADILY DEPRESSED BY LARGER DOSES OF THE PREPARATIONS REPEATEDLY APPLIED FOR SEVERAL DAYS. LARGE DOSES INJECTED BEFORE ITS ELABORATION FULLY PREVENT THE IMPRINTING OF THE REACTION AND OF ITS EMOTIONAL COMPONENT. CHLOR PROMASINE ADMINISTERED BOTH IN 10 TO 15 MIN. AND IN THREE WEEKS AFTER THE ELABORATION OF THE CONDITIONED DEFENSIVE REACTION, EXERTS NO INFLUENCE EITHER ON THE DIRECT OR LONG TERM EMOTIONAL MEMORY. THE POSSIBLE MECHANISM OF THE ACTION OF MUSCARINE ANTICHOLINERGIC DRUGS ON THE EMOTIONAL MEMORY IS DISCUSSED.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--ACTION OF DRUGS ON MEMORY AND TRAINING -U-

AUTHOR--ILYUCHENOK, R.YU.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(2), 237-46

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DRUG EFFECT, MEMORY, CHOLINOLYTIC, NERVE, RNA, PROTEIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0365 STEP NO--UR/0390/70/033/002/0237/0246

CIRC ACCESSION NO--AP0127946

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

2/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0127946
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BLOCKING OF CHOLINERGIC RECEPTORS IN MICE BY BENZACINE (I) LIMITED THE TIME FOR REGISTERING THE AFFECTS OF ANTICHOLINERGIC COMPDS. I (2 MG-KG) WAS ADMINISTERED I.V. 5 MIN BEFORE THE EXPT., BUT ITS ANTICHOLINERGIC ACTION WAS LIMITED BY GALANTHAMINE DIRECTLY AFTER FORMATION OF CONDITIONED REACTIONS IN 1 COMBINATION. THE AMNESIC EFFECT OF I DID NOT APPEAR IN THIS CASE. WITHOUT GALANTHAMINE I BLOCKED THE FEAR REACTION. TRACES OF MEMORY COULD BE REGISTERED AND PRESERVED DURING BLOCKING OF COMPLETION OF THE REACTION IN TRAINING. PROLONGED RETENTION OF THE DEVELOPING FEAR REACTION DECREASED IN MICE RECEIVING ANTICHOLINERGIC SUBSTANCES. SUBSTANCES AFFECTING BEHAVIOR AND CIRCULATION OF NERVE IMPULSES IN THE NEURONS AND THE SYNTHESES OF RNA AND PROTEINS ARE DISCUSSED, AND THE ROLE OF EMOTIONS AND OF THE RETICULAR ACTIVATING SYSTEM IN REGULATING MEMORY ARE CONSIDERED.
FACILITY: INST. FIZIOL. SIB. OTD., USSR. .

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR UDC 518(02)

ILYUKHIN, A. G., and KOVALENKO, V. P.

"Numerical Methods of Processing Information in Studies on Dynamic Systems"

Chislennyye metody obrabotki informatsii pri issledovanii dinamicheskikh sistem (cf. English title above), Kiev, "Naukova dumka," 1971, 176 pp, ill., 81 kopecks (from Referativnyy Zhurnal - Matematika, No 8, Aug 71, Abstract No 8B782 K)

Translation: Given the advances in modern computers, the fields of numerical analysis used in engineering practice in electrical and radio engineering as well as in automatic control theory are outlined. Five chapters of the monograph dealt with the method of least squares (recommendations are given on approximating nonpolynomial type functions); analysis of periodic and quasi-periodic processes (problems of constructing trigonometric polynomials of optimum approximation, convergence of approximation by trigonometric sums, smoothing of approximated functions, and so on are discussed); integral transformations (Fourier and Laplace); orthogonal systems of functions (recommendations are given on using a system of orthogonal harmonic functions and also systems of Walsh and Haar systems); and an introduction is given to the computation of sums (methods of summing series). 76 bibliographic references. 1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

ILYUKHIN, A. V.

TASS 56030.
18 May 72

UDC 612.111.2.014.482

ERYTHROCYTE RESERVE IN HEALTHY AND CHRONICALLY IRRADIATED DOGS

[Article by A. V. Ilyukhin, L. L. Gerenko, A. G. Ivegina, and B. A. Markelov; Moscow, Kosmicheskaya biologiya i meditsina, Russian, Vol 6, No 2, March-April 1972, pp 21-25, submitted for publication 10 June 1971]

Abstract: This paper gives experimental data which help to quantitize the level at which the erythrocyte level of healthy and irradiated dogs is mobilized after a physical load. After running for 15 minutes on a treadmill at a speed of 5.2 km/hour the healthy dogs released into the bloodstream 2.5±0.9% of the red blood cells of the total number of cells circulating in the blood. The most distinct index showing the state of the erythrocyte reserve is the reticulocytosis which develops in response to a given physical load. On the basis of data in the literature and their own findings the authors suggest that the erythrocyte reserve originates in the bone marrow. An experiment [illegible] in the quantitative re-
[illegible] the blood [illegible] was
[illegible] the [illegible] in normal dogs of 40,
[illegible] 60, and 80 - mole respec-
tively.

Considerations of the [illegible] erythrocytes and the intensity of their [illegible] in the human body in different laboratory animals were [illegible] (Crankite, et al.). Some [illegible] at rest [illegible] contrast to granulocytes, do [illegible] at all or [illegible] cell renewal (Ford, et al.). At [illegible] Gurevich and L. Ya. Yengel'gova point out that during light and [illegible] in an increase in the hemoglobin content and the number of [illegible] to emergence of the blood from its [illegible] in the [illegible] in the [illegible] in [illegible] in contrast to [illegible] work is characterized by an increase in the number of [illegible] in the peripheral blood. However, we do not find investigations in the literature indicating the magnitude

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

JPRS 55951
12 April 1972

UDC 612.014.482.4

RADIOBIOLOGICAL EFFECTS AFTER 3-YEAR GAMMA IRRADIATION OF DOGS

[Article by Yu. G. Grigor'yev, B. A. Markelov, V. I. Popov, A. A. Akhunov, A. V. Ilyukhin, T. P. Tsvetayeva, A. V. Sedov, and V. A. Korshunov; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 6, No 1, pp 3-7, 1972, submitted for publication 25 March 1971]

Abstract: This paper summarizes the results of a three-year radiobiological experiment on dogs. In several experimental series chronic irradiation with varied dose rates (21 to 150 rad per year) and chronic irradiation combined with acute exposures (total doses of 100 rad per year) were applied. Clinical hematological, physiological and cytological examinations demonstrated that the animals maintained a satisfactory clinical condition and exhibited no serious organic radiation damage. However, a decrease in their reactivity were noted, and a change in their reactivity were noted.

A lack of adequate information in the literature on the biological effects induced by constant exposure to ionizing radiation in the doses possible during prolonged space flights served as a basis for conducting a special experiment on a large number of dogs. The scientific program for the experiment, the irradiation conditions and the results obtained one and two years after beginning this experiment have been published earlier (Yu. G. Grigor'yev, et al., 1968, 1970).

This paper gives materials obtained after three years of irradiation of the experimental animals. Data on the number of animals, doses and irradiation conditions are given in Table 1.

After three years of the experiment the condition of the animals, evaluated from the results of systematic examinations (inspections, temperature measurement, measurements of body weight, pulse and respiration rates), remains satisfactory. The incidence of disease in the irradiated groups (conjunctivitis, dyspepsia, etc.) was low and did not exceed the corresponding incidence in the group of control animals.

ILYUKHIN, A. V.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

ILYUKHIN, A. V.

Radiation Medicine

SO: JPRS 53448
24 June 71

UDC 612.111.3.014.482.4

STATUS OF ERYTHROPOIESIS IN DOGS EXPOSED TO GAMMA IRRADIATION IN DOSES SIMULATING CONDITIONS ACCOMPANYING PROLONGED SPACEFLIGHT

(Article by L. L. Samashko, A. V. Ilyukhin and B. A. Markelov; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 2, 1971, pp 22-24, submitted for publication 10 June 1970)

Abstract: This paper gives the results of studies of different aspects of erythropoiesis (lifetime of red blood cells, bone marrow production) of dogs exposed to Co^{60} gamma irradiation for 2.5 years. Two-year chronic irradiations with a dose of 62.5 rad/year, followed by exposures of 42 rad three times a year, shortened the half-life of erythrocytes. However, the damage processes were repaired, as could be judged from the absence of anemia, increase in bone marrow erythroid elements, and acceleration of bone marrow red blood cell production. Repair can be attributed to activated erythroid hemopoiesis. The changes produced by chronic irradiation alone were of a similar nature, but less distinct.

This paper gives the results of a study of the lifetime of erythrocytes, the bone marrow production of erythrocytes, and some other characteristics of erythropoiesis in dogs subjected for 2.5 years to γ-irradiation from a Co^{60} source. This work was part of complex investigations of the biological effect of prolonged irradiation, in dose intensity and duration simulating the radiation conditions in a ship cabin during prolonged space flight (Yu. G. Grigor'yev, et al.).

Material and Research Methods

In the experiments we used 30 common male dogs ages two or three years. The animals were broken down into three groups: the 12 dogs in the first group, against a background of persistent (22 hours a day) chronic γ-irradiation with a dose intensity of (2.5 rad/year, were subjected each four months to repeated radiation in a dose of 42 rad. The total mean absorbed tissue dose

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

Epidemiology

USSR

UDC 616.932-092.9

AVRORov, V. P., SAYAMOV, R. M., ILYUKHIN, V. I., GLYAN'KO, Ye. V., and BARDYKH, I. D., Rostov-on-Don Cholera Institure Laboratory of Pathological Physiology and Laboratory of Emergency Prophylaxis and Treatment of Cholera

"Factors That Promote the Development of Experimental Cholera in Puppies"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 6, 1972, pp 18-20

Abstract: Two- to 3-month-old puppies were inoculated with various strains of El Tor vibrio under different conditions to determine the suitability of these animals as an adequate model of cholera for pathophysiological and immunological studies. Infection was generally induced only when the animals received bacterial suspensions freshly isolated from cholera patients. The administration of actinomycin D, which lowers resistance to intoxication and infection, increased the probability of infection with the typical clinical symptoms and isolation of the causative agent from the stools and intestinal contents. The rate of infection was also increased by blocking gastric secretion either with alcohol or 3 days' fasting.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 533.601.1:533.607.11

GOSTINTSEV, YU. A., IL'YUKHIN, V. S., POKHIL, P. F., Moscow. Institute of Chemical Physics, Academy of Sciences, USSR

"The Zone of Reverse Flow in Rapidly Rotating Gas Streams and Jets"

Minsk, Inzhererno-Fizicheskiy Zhurnal, No. 6, 1971, pp 1036-1041

Abstract: In the article are presented the results of an experimental investigation of the near-axial zone of reverse flows of a rotating supersonic underexpanded jet and a helical flow of gas in the diffuser part of the nozzle. With the flow of a rotating stream of gas in the supersonic diffuser part of the nozzle, a zone of reverse currents can form in the vicinity of the axis, just as in the case of a free twisted jet. The origination of such a zone brings about the appearance of a complex pattern of interaction of the shocks in the nozzle, which affects the separation of the stream from the walls and which affects the traction characteristics of the nozzle. 5 figures, 6 bibliographic entries.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 548.735.46

KUZ'MIN, E. A., GOLOVACHEV, V. P., ILYUKHIN, V. V., BELOV, N. V., Gor'kiy State University, Crystallography Institute of the USSR Academy of Sciences

"Systematic Analysis of the Patterson Function Based on Crystal Symmetry. IV. Interpretation of the Patterson Syntheses of Low-Syngony Crystals"

Moscow, Kristallografiya, Vol 18, No 1, 1973, pp 54-62

Abstract: An algorithm is presented in analytical form for isolation of the rhombuses of the peaks, matching the basic and satellite rhombuses, and also recording the base segment in the basic system for low-syngony crystals. The algorithm makes it possible to check for the presence of all peaks joined into rhombuses and generated by 2k atoms in the Patterson function. The final step is isolation of the singularity which completely defines the origin in the given specific Fedorov group with respect to the initial segment. A necessary condition is the presence of all peaks of the rhombuses. If at least one of the vectors (peaks) is absent, the final point simply is not isolated. In the centered lattices several points are isolated, but they are related by the corresponding translations. If only the Roentgen group is known, the analysis is

1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

KUZ'MIN, E. A., et al., Kristallografiya, Vol 18, No 1, 1973, pp 54-62

carried out within the framework of the Fedorov groups entering into it, and during the analysis process the true one is established. Inasmuch as after isolating the rhombuses the position of the initial (base segment) is obtained, the coordinates of the 2k atoms are established. Their position must be used to isolate the entire structure by the M_{2k} rank minimization function.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 548.735.40

ILYUKHIN, V. V., BELOV, N. V., Institute of Crystallography, Academy of Sciences USSR

"Probability Approach to Estimating the Appearance of Key Peaks on a Patterson Function Background (A New Approach to the Patterson Function)"

Moscow, Kristallografiya, No. 6, Nov/Dec 71, pp 1134-1139

Abstract: A probability approach to the Patterson function is developed which gives a fairly reasonable estimate of the probability of distinguishing key Patterson vectors on the general background of the picture of interatomic interactions depending on the simplest characteristics of atoms mutually combining in the structure. It is shown that one can determine, on the basis of the height of a peak appearing in the Patterson synthesis, with what probability this peak corresponds to a certain given interatomic interaction. By assigning a probability or confidence limit for the localization of an interatomic vector, it is then possible to estimate its amplitude corresponding to this probability. This new probability approach to the Patterson function of distinguishing the

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

ILYUKHIN, V. V., BELOV, N. V., Kristallografiya, No. 6, Nov/Dec 71, pp 1134-1139

signal at the noise level is said to solve concisely the problem of detecting different vectors on a Patterson background and to make their use more valid as keys in interpreting a crystal structure. Structures of the following crystals are analyzed as examples: Lomantite, Na_2ZrSiO_5, and Y_2SiO_5.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR UDC 548.736.6

PETRUNINA, A. A., ILYUKHIN, V. V., and BELOV, N. V., Academician, Institute of Crystalography of the USSR Academy of Sciences, Moscow

"Crystal Structure of Tinaxite=$NaK_2Ca_2TiSi_7O_{19}(OH)$"

Moscow, Doklady Akademii Nauk SSSR, Kristallografiya, Vol 198, No 3, 1971, pp 575-578

Abstract: The authors study the crystal structure of a new natural silicate of titanium, sodium, potassium, and calcium. A table is given for the base atoms of tinaxite along with the following graphs: 1) The xz-projection of tinaxite structure. An infinite wall with respect to two measurements consisting of three types of octahedrons: Na, Ti, and a double number of Ca. The wall splits into pilasters (each consisting of two columns), one of pure Ca-octahedrons and the other of alternating pairs of Na- and Ti-octahedrons. 2) An idealized tinaxite silicon-oxygen radical band of parallel and converged chains: wollastonite and vlasovite. 3) A tinaxite band in a natural state with a re-entrant angle between the two components. 4) An xy-projection of the structure of tinaxite. The translationally identical walls are shown with the end planes of the columns: pilasters of double

1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

PETRUNINA, A. A., et al., Doklady Akademii Nauk SSSR, Kristallografiya, Vol 198, No 3, 1971, pp 575-578

Ca-columns and pilasters with alternating Na- and Ti-pairs. Silicon-oxygen bands can be seen in the left cell, while large K cation fillers are seen in the right. The authors thank A. A. Voronkov and Yu. A. Pyatenko for allowing them the use of their experimental material and thus making possible the decoding of this complex and unusual silicate. They also thank B. A. Maksimov for his assistance. Original article: one table, four figures, and six bibliographic entries.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR UDC 548.736.6

GANIYEV, R. M., ILYUKHIN, V. V., and BELOV, N. V.

"Crystal Structure of Ca Hydrosilicate -- Phase Y = $C_6S_3H \equiv Ca_6[Si_2O_7][SiO_4](OH)_2$"

Moscow, Kristallografiya, Vol 16, No 5, Sep-Oct 71, pp 893-898

Abstract: In the triclinic cell $a = 6.85$, $b = 6.95$, $c = 12.90$ Å, $\alpha = 90°45'$, $\beta = 97°20'$, $\gamma = 98°15'$, $Z = 2(C_6S_3H = 6CaO \cdot 3SiO_2 \cdot H_2O)$. The structure was deciphered by the multiple peak method. The main building block is a portlandite-like trellis wall of Ca polyhedrons separating the cell in a 2:1 ratio. There are paired Ca ribbons in the wider separating walls, individual columns in the narrow walls running in the direction of the a axis. Identical ribbons are bound by diortho groups $[Si_2O_7]$, columns by single orthotetrahedrons $[SiO_4]$. Thus, the formula of phase Y of the composition C_6S_3H $6CaO \cdot 3SiO_2 \cdot H_2O = Ca_6Si_3O_{12} \cdot H_2O$ evolves into $Ca_6[Si_2O_7][SiO_4](OH)_2$.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 548.736

KUZ'MIN, E. A., ILYUKHIN, V. V., and BELOV, N. V., Academician, Gor'kiy State University imeni N. I. Lobachevskiy, Institute of Crystallography of the Academy of Sciences USSR, Moscow

"Certain Regularities in the Position of Maxima in Separation Functions in the Presence of Multiple Peaks in the Vector System (General Case, Fedorov P1 Group)"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 5, 11 Feb 71, pp 1080-1083

Abstract: It is shown that the classical Wrinch-Buerger method of identifying point vector systems and finding the base system should be considered as only the first part of a general algorithm for identifying vector systems. The algorithm developed by Wrinch and Buerger assumed the absence of overlapping and multiple peaks in the vector system. This is written analytically in the form

$$(\mathbf{r}_n - \mathbf{r}_m) - (\mathbf{r}_q - \mathbf{r}_p) \neq 0,$$
$$\mathbf{r}_{mn} \neq \mathbf{r}_{pq}.$$

The inequalities (1) and (1') are a particular case of the more general condition

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

KUZ'MIN, E. A., et al., Doklady Akademii Nauk SSSR, Vol 196, No 5, 11 Feb 71, pp 1080-1083

$$(r_j - r_i) - \{(r_q - r_m) - (r_q - r_p)\} \neq 0, \quad (2)$$

$$r_{ij} \neq r_{mn} - r_{pq}, \quad (2')$$

This condition is necessary and sufficient for separation of the base system from the vector system according to the algorithm. Success in identification of the vector system is then guaranteed and no extraneous points arise in the separation functions if vectors satisfying conditions (1) and (2) are selected as shift vectors. The condition of only one common point (at the ends) of two segments $i_1 = i_2 = i$ leads to a triangle, the separation of which is written in the form of a system of two equations

$$r_{ij_1} = r_{mn} - r_{p_1q_1},$$

$$r_{ij_2} = r_{mn} - r_{p_2q_2}.$$

This system gives a condition for the separation of points mn upon shifts by the vectors r_{ij_1} and r_{ij_2}. This system of equations is generalized for the case of polygons of any rank.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

1/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--SYNTHESIS AND SOME PROPERTIES OF CA NA SILICATE SINGLE CRYSTALS -U-

AUTHOR-(05)-GANIYEV, R.M., KUZNETSOV, V.A., LIDER, V.V., ILYUKHIN, V.V., BELOV, N.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 398-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SILICATE, CALCIUM COMPOUND, SODIUM COMPOUND, CHEMICAL SYNTHESIS, SINGLE CRYSTAL, PHASE ANALYSIS, CRYSTAL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0606 STEP NO--UR/0363/70/006/002/0398/0399

CIRC ACCESSION NO--AP0105589

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

2/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105589

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONDITIONS FOR THE FORMATION OF CA NA SILICATE PHASES IN THE CAO MINUS SIO SUB2 MINUS NAOH SYSTEM WERE STUDIED. THE PHASES 4CAO.5SIO SUB2 .2NA SUB2 O AND NA SUB2 CASI SUB3 O SUB8 WERE PRESENT IN THIS SYSTEM, AS DETD. BY ELECTRON MICROPROBE ANAL. THE LATTICE PARAMETERS AND INTERPLANAR SPACINGS OBTAINED FOR THESE PHASES AGREE WELL WITH PREVIOUSLY REPORTED DATA. THE PHASE 4CAO.5SIO SUB2 .2NA SUB2 O PPTS. OUT IN THE FORM OF COARSE (1-3 MM) AND WELL FORMED SINGLE CRYSTALS OF PRISMATIC HABIT; IT HAS A D. OF 2.872 G-CM PRIME3. ITS OPTICAL CONSTS. WERE ALSO DETD. DTA DATA SHOW THE PRESENCE OF AN ENDOTHERMIC EFFECT AT 980DEGREES, WHICH IS NOT ACCOMPANIED BY THE PPTN. OF GASEOUS PRODUCTS OR WT. LOSSES. THIS INDICATES THAT THE 4CAO.5SIO.2NA SUB2 O PHASE DOES NOT CONTAIN STRUCTURAL WATER AND THAT IT EXHIBITS A POLYMORPHIC TRANSITION AT SIMILAR TO 980DEGREES.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PRINCIPLES OF THE FORMATION OF CRYSTALS AND CRYSTALLINE CONCRETIONS OF CALCIUM HYDROXIDE IN SETTING CEMENT STONE -U-

AUTHOR-(05)-BUTT, YU.M., TIMASHEV, V.V., BAKSHUTOV, V.S., ILYUKHIN, V.V., GOLOVACHEV, V.P.

COUNTRY OF INFO--USSR

SOURCE--TSEMENT 1970, (2), 20-2

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--X RAY DIFFRACTION, CRYSTALLIZATION, CALCIUM COMPOUND, CEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0894 STEP NO--UR/0101/70/000/002/0020/0022

CIRC ACCESSION NO--AP0137922

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

2/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137922

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VISUAL, X RAY DIFFRACTION, AND ELECTRONOGRAPHIC STUDY OF CRYSTALS AND CRYST. CONCRETIONS OF PORTLANDITE CO(OH) SUB2 (I), FORMED AND GROWING UNDER DIFFERENT CONDITIONS: SATD. SOLNS. CACL SUB2 AND KOH, HYDRATATION OF TRI,CA SILICATE, AND CEMENTS IN EXCESS OF WATER OR IN USUAL D. OF CEMENT PASTE, IS GIVEN. I CRYSTALLIZES IN THE FORM OF COLORLESS HEXAGONAL TABLETTES OF PRISM AND BELONGS TO THE SPACE GROUP C3ML, A EQUALS B EQUALS 3.60, C EQUALS 5.0 ANGSTROM, INTERAT. DISTANCES CA,O 1.14, O,H 0.79, H,H 1.03 ANGSTROM. THE CONCRETIONS ORIGINATE IN THE PERIOD OF SUPERSATD. COMPN. OF SOLN. OWING TO SIMULTANEOUS GROWTH OF CRYSTALS FROM ONE POINT OR EDGE. THE SIZE OF CRYSTALS FORMING THE CONCRETIONS IS NOT HIGHER THAN THE SIZE OF CRIT. CRYSTG. NUCLEUS (10 PRIME NEGATIVE6-10 PRIME NEGATIVE5 CM); BY FURTHER INCREASE OF THE CRYSTAL SIZE, THE PROBABILITY OF FORMATION OF THE CONCRETIONS DECREASES. FACILITY: MKHTI IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 548.736.6

GANIYEV, R. M., ILYUKHIN, V. V., and BELOV, N. V., Academician, Institute of Crystallography of the Academy of Sciences USSR, Moscow

"Crystalline Structure of the Cement Phase $Y = Ca_6[Si_2O_7][SiO_4](OH)_2$"

Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 4, 1 Feb 70, pp 831-834

Abstract: The *Y*-phase is one of the most stable products of the hydration of Ca-silicates and arises in the hydrothermal treatment of mixtures of β-C_2S, γ-C_2S, and $C_2SH(A)$ silicates and of more elementary mixtures such as $CaO + SiO_2$, CaO + quartz, $Ca(OH)_2 + SiO_2$, $CaCO_3$ + quartz, etc. The *Y*-phase is stable over a broad range of temperatures up to 800° and pressures up to 2000 at. X-ray structural analysis showed that a triclinic cell has the following parameters: $a = 66.85$, $b = 6.95$, $c = 12.90$ Å; $\alpha = 90°45' \pm 15'$; $\beta = 97°20' \pm 20'$; $\gamma = 98°15' \pm 15'$; $Z = 2Ca_6Si_3O_{12}\cdot H_2O$. Structural diagrams of the *Y*-phase are given and explained. It is noted that the *Y*-phase represents a starting Ca-silicate and along with epidote, zoisite, and $K_2Mn_2Zn_4[SiO_4]_2[Si_2O_7]$ is one of the few silicates in which ortho- and diorthosilicate groups exist in the structure.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 548.736.6

TREUSHNIKOV, E. N., ILYUKHIN, V. V., and BELOV, N. V., Academician, Institute of Crystallography, Academy of Sciences USSR, Moscow

"The Crystalline Structure of Na, Zr-Oxyorthosilicate $Na_2ZrSiO_5 = Na_2O \cdot ZrSiO_4$"

Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 2, 1970, pp 334-337

Abstract: A structural investigation was made of single crystals of Na_2ZrSiO_5 obtained from V. G. Chukhlantsev of Ural'sk Polytechnical Institute imeni S. M. Kirov. Interest in sodium-zirconium silicates was prompted by the increased demands on heat resistant enamels, ceramics, and adsorbents. X-ray analysis showed the parameters of a monoclinic cell to be: a = 13.92, b = 5.46, c = = 13.70 Å; β = 120°. The coordinates of the basal atoms and the interatomic distances calculated on the basis of these coordinates are presented in a table. Both independent Zr atoms were localized in an almost perfect oxygen octahedron. The deviations of the six ZrO distances from the sum of the ion radii did not exceed 10%. The basic structural features of Na_2ZrSiO_5 are the chain-columns of Zr-octahedra extending along the short b-axis and connected with one another by the common vertices $[ZrO_5]_\infty$. In a complete cell there are

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

TREUSHNIKOV, E. N., et al, Doklady Akademii nauk SSSR, Vol. 190, No. 2, 1970, pp 334-337

four Zr-columns which separate into two crystallographically independent pairs, one along the 2_1 axis with $x = 0$ and the other along the 2_1 axis with $x = \frac{1}{2}$. The different orientation of the planes in which the Zr-octahedra of alternating height are in the two types of columns is another feature of the structure.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

Acc. Nr: A70048314 Abstracting Service: CHEMICAL ABST. 5170 Ref. Code: 11R 0020

94169y Crystal structure of $Na_2(TiO)[GeO_4]$. Verkhovskii, V. Ya.; Kuz'min, E. A.; Ilyukhin, V. V.; Belov, N. V. (Inst. Kristallogr., Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(1), 91–3 [Crystallogr] (Russ). $Na_2(TiO)[GeO_4]$ crystals belong to the D_{4h}^1–P4/*nmm* symmetry group and have lattice parameters $a = 6.67$ and $b = 5.16$ Å; $Z = 2$. Ge is tetrahedrally spaced, having 4 Ge–O bonds equal to 1.74 Å, Na is octahedrally spaced, having 4 Na–O equal to 2.32 and 2 Na–O equal to 2.67 Å, and Ti is polyhedrally spaced having 4 Ti–O equal to 2.0, 1 Ti–O equal to 1.72, and 1 Ti–O = 3.44Å. Ti is 5-coordinated. Presumably, in the investigated compd. and its analogs, Ti behaves as a semication–semianion, and, along with tetrahedral GeO_4, it forms the 3-dimensional structure of the crystals.

IIMJR

I B

1/1

REEL/FRAME
19800016

18

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

Acc. Nr: AT0040575 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code: UR0020

I

83707w Crystal structure of sodium silicate zirconate, Na_2ZrSiO_5. Treushnikov, E. N.; Ilyukhin, V. V.; Belov, N. V. (Inst. Kristallogr., Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(2), 334–7 [Crystallogr] (Russ). Monoclinic single crystals of Na_2ZrSiO_5 have a = 13.92, b = 5.46, c = 13.70 Å; β = 120°; Z = 8, space group $P2_1/c$. The structure was solved by the Patterson and Fourier techniques and refined by the method of least squares to R = 0.131 for the 1500 nonzero reflections. The 2 independent Zr atoms are both in octahedral surroundings with Zr–O distances of 1.99–2.17 Å. The Zr octahedra are joined at the vertices to form chains in the y direction. The chains are joined together by fairly regular SiO_4 tetrahedra to form sheets in the xy plane. Three of the 4 independent Na atom have somewhat distorted octahedral surroundings; the 4th is surrounded by 7 O atoms in the shape of a capped trigonal prism.

Mary Frances Richardson

LD

4

REEL/FRAME
19750096

18

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

1/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--CRYSTAL STRUCTURE OF SYNTHETIC SODIUM YTTRIUM ORTHOGERMANATE NAY(GEO SUB4) -U-
AUTHOR-(04)-KUZMIN, E.A., MAKSIMOV, B.A., ILYUKHIN, V.V., BELOV, N.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 159-61

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CRYSTAL STRUCTURE, X RAY DIFFRACTION ANALYSIS, CRYSTAL LATTICE PARAMETER, SODIUM COMPOUND, YTTRIUM COMPOUND, GERMANIUM COMPOUND, OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0783 STEP NO--UR/0192/70/011/001/0159/0161

CIRC ACCESSION NO--AP0104229
UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

2/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104229

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STRUCTURE OF NAYGEO SUB4, ISOMORPHOUS WITH NAYSIO SUB4, WAS DETD. BY SINGLE CRYSTAL X RAY METHODS. THE ORTHORHOMBIC LATTICE PARAMETERS ARE A 5.32, B 11.49, AND C 6.49 ANGSTROM; THE SPACE GROUP IS PBN2 SUB1; AND Z EQUALS 4. THE Y ATOM IS SURROUNDED BY 6 O ATOMS AT THE CORNERS OF AN OCTAHEDRON; Y-O DISTANCES ARE 2.25-2.44 ANGSTROM. THE NA COORDINATION POLYHEDRON CONTAINS 6 O ATOMS AT DISTANCES OF 2.24-2.65 ANGSTROM. GE IS TETRAHEDRALLY COORDINATED (GE-O EQUALS 1.66-1.81 ANGSTROM). MARY FRANCES RICHARDSON

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 548.736

KUZ'MIN, E. A.: ILYUKHIN, V. V., and Academician BELOV, N. V. (Gor'kiy State University imeni N. I. Lobachevskiy and the Institute of Crystallography, Academy of Sciences USSR, Moscow)

"Separation of the Basic System from the Vector System, Using the Double Peak (General Case: The Fedorov P1 Group)"

Moscow, Doklady Akademii Nauk SSSR (Proceedings of the Academy of Sciences USSR), Vol 193, No 3, 1970, pp 579-582

Abstract: A graphic method is demonstrated for deriving a basic system (BS) of crystallographic points from a vector system (VS), in which the number of initial vector peaks $N_1 = 2$: i.e., when two pairs of N points of the BS having coordinates $x_1, y_1, z_1, \ldots, x_4, y_4, z_4$ satisfy the conditions $r_{12} = r_{34}$ (and consequently $r_{13} = r_{24}$).

A two-vector system is superimposed on a basic system of 6 points, and parallelograms are drawn that uniquely locate additional points. By translating the figures along the vector lines, additional points as well as the centers of symmetry are determined. Other vectors, based on geometric principles, are

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

KUZ'MIN, E. A., et al, Doklady Akademii Nauk SSSR (Proceedings of the Academy of Sciences USSR), Vol 193, No 3, 1970, pp 579-582

drawn. The algorithm for performing the graphic construction is given, and the corresponding matrixes are presented.

Orig. art. has 4 figs. and 5 refs.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 548.736.6

CHERNOV, A. N., MARKIMOV, B. A., ILYUKHIN, V. V., Academician BELOV, N. V.

"Crystalline Structure of a Monoclinic Modification of K,Zr Diorthosilicate = $K_2ZrSi_2O_7$"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 6, 1970, pp 1293-1296

Abstract: Crystals of this type were obtained in the examination of the K_2O-ZrO_2-SiO_2 system by V. G. Chukhlantsev and M. M. Poleshayev of the Ural Polytechnical Institute imeni S. M. Kirov. In a cell of the crystal having the periods a = 9.54 and b = 14.36 (with an even pseudo-period of b' = b/2) c = 5.60Å, γ = 116°31', Z = 4 units. The Fedorov group C_{2h}^5 = $P2_1/c$ is determined by quenching. Analysis of the three-dimensional Patterson function P(uvw) detected heavy atoms of Zr and medium atoms of Si and K, the coordinates of the last two being taken as the starting points in the synthesis of the electron density $\rho(x,y,z)$. Two tables are supplied in the article, the first giving final values of the basic atom coordinates, the second giving the interatomic distances computed from the data of the first. Also presented are two sketches of the $K_2ZrSi_2O_7$

1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

CHERNOV, A. N., et al, Doklady Akademii Nauk SSSR, Vol 193, No 6, 1970, pp 1293-1296

structure in the xy and yz projections and a sketch of the $Na_2ZrSi_2O_7$ structure in the xy projection. The authors note that it is worthwhile to make a comparison of the two structures of $K_2ZrSi_2O_7$ and $Na_2ZrSi_2O_7$ with that of $Na_3Sc/Si_2O_7/$, where the 4-valent Zr is replaced by the almost identical ion radius of the 3-valent scandium.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--REDUCTION OF THE EPOXIDE RING DURING THE REACTION OF METHYLMAGNESIUM IODIDE WITH THE 20,ETHYLENE KETAL OF 16 ALPHA, 17

AUTHOR-(04)-PROKOFYEV, YE.P., AKHREM, A.A., ILYUKINA, T.V., ZAYKIN, V.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. ADAD. NAUK SSSR, SER. KHIM. 1970, (3), 715-6

DATE PUBLISHED----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STEROL, EPOXIDE, ACETATE, HYDROXYL RADICAL, CHEMICAL REDUCTION, NMR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1884 STEP NO--UR/0062/70/000/003/0715/0726

CIRC ACCESSION NO--AP0123672

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

2/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0123672
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTRARY TO PUBLISHED CLAIMS (SCIAKY, R., 1961; SUVOROV, N. N., ET AL., 1960) IT WAS SHOWN FROM MASS AND NMR SPECTRAL DATA THAT REACTION OF 16 ALPHA,17 ALPHA, EPOXYPREGN,5,EN,3 BETA, OL,20,ONE ACETATE 20,ETHYLENE KETAL WITH MEMGI PROCEEDS SO THAT ALONG WITH NORMAL OXIDE RING OPENING TO FORM THE 16 BETA,METHYL,17 ALPHA,HYDROXY DERIV., THERE IS ALSO FORMED THE 16,DEMETHYL ANALOG (I), PROBABLY VIA REDN. OF THE OXIDE RING BY RMGX. THIS YIELDS A DIFFICULTLY SEPARABLE MIXT. OF THE TWO PRODUCTS WHICH HAVE THE SAME CHROMATOGRAPHIC MOBILITY. IF THE REACTION IS RUN IN THF IT IS FURTHER COMPLICATED BY FORMATION OF 20,METHYLPREGN,5,ENE,3 BETA, 17 ALPHA,20,TRIOL, WHILE IN ET SUB2 O,C SUB6 H SUB6 THE MAIN REACTION FORMS PRODUCTS OF WAGNER,MEERWEIN REARRANGEMENT, YIELDING 53PERCENT II.
FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

Exobiology

USSR UDC 576.807:523

FEDOROVA, R. I., MILEKHINA, Ye. I., and IL'YUKHINA, N. I., Institute of Space Studies, Academy of Sciences, USSR, Moscow

"On the Possibilities of the "Gas Exchange" Method for the Detection of Extraterrestrial Life -- Identification of Nitrogen Fixing Microorganisms"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 73, pp 797-805

Abstract: The possibility of the identification of nitrogen fixing microorganisms has been investigated in an experiment on Mars, by the reduction of $C_2H_2 \rightarrow C_2H_4$ with concurrent analysis of concurrent changes in the gaseous phase. The inhibiting effect of C_2H_2 has been identified, manifested by the retardation of the multiplication of anerobic nitrogen fixators and in time laps of the appearance of H_2 and C_2H_2. The degree of inhibition depends on the type of soil and on the titre of nitrogen fixators. It has been established that C_2H_2 (0.015; 0.12 atm) inhibits the reduction of N_2O by the denitrificating microorganisms. It is proposed to determine the denitrification ability of soils by means of the blocking activity of acetylene of the

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

FEDOROVA, R. I., et al., Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 73, pp 797-805

reduction stage of N_2O N_2. In the planning stage of the exobiologic studies this makes it possible to identify in one text two physiological groups of microcrganisms, improving the reliability of the experiment, i.e. it makes it possible to control the change in the denitrification process by serveral gas components: H_2, N_2O, C_2H_2, N_2.

2/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC 577.4

IL'YUSHA, S. N.

"Model of Optimal Correction of Forecasts of the Indexes of the Financial Income and Expenditure Balance Sheet of the Population"

V sb. Razrabotka avtomatizir. sistemy plan. raschetov v soyuz. resp. (Development of Automated Planning Calculation Systems in the Union Republics -- collection of works), Kiev, 1971, pp 137-142 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V523)

No abstract

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

UDC: 621.396.677

IL'YUSHCHENKO, A. V.

"Electrical Parameters of Saber Antennas as a Function of the Geometric Parameters of the 'Saber'"

Tr. Vitebsk. tekhnol. in-ta legk. prom-sti (Works of the Vitebsk Technological Institute of Light Industry), 1970, 1, pp 76-78 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B85)

Translation: The saber antenna is a flat element bounded by two generatrices which are described by exponential equations. The broad end of the antenna is welded to a metal shield, and the narrow end is excited by a feeder. The input impedance of the antenna is studied as a function of the dimensions of the cavity formed by the inner generatrix and the shield, and as a function of the thickness of the element. It is noted that the rate of development of the generatrices and the diameter of the feeder output aperture have no appreciable effect on the input impedance of the antenna. Bibliography of four titles. N. S.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

UDC [621.357.7:669.295]:669.293

USSR

BELYAYEVA, G. I., ANFINOGENOV, A. I., ILYUSHCHENKO, N. G., FINKEL'SHTEYN, S. D.

"Influence of Melt Composition on Rate of Titanation of VN-2 Alloy"

Tr. In-ta Elektrokhimii. Ural'sk. Nauch. Tsentr. AN SSSR [Works of Institute of Electrochemistry, Ural's Scientific Center, Acad. Sci. USSR], No 17, 1971, pp 131-136 (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 L357 by A. V. Dribinskiy).

Translation: The influence of potassium fluorotitanate, time and temperature on the rate of titanation of Nb alloy in a chloride melt, phase composition and heat resistance of the diffusion coating is studied. It is demonstrated that the heat resistance of the titanated alloy is greater than the resistance of pure Nb.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

UDC 669.71'74.472

USSR

KORNILOV, N. I., ILYUSHCHENKO, N. G., SOLOMATIN, V. Ye., and BOYDENKO, V. S.

"Investigation of the Behavior of Manganese and Aluminum in a Molten Mixture of Lithium and Potassium Chlorides in the Presence of Aluminum Fluoride"

Tr. In-ta elektrokhimii. Ural'skiy fil. AN SSSR (Works of the Institute of Electrochemistry. Ural Branch of the Academy of Sciences USSR), 1970, vyp. 15, pp 97-101 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G244 by G. SVODTSEVA)

Translation: Determinations were made of equilibrium electrode potentials of Al-Mn alloys (48-60 at.% Mn) relative to comparison Al-electrode at 693-873° K, and a study was also made of the kinetics of Al transfer to Mn in a eutectic mixture of KCl and LiCl with the addition of AlF_3 in contact with metallic Al. Measurement of the Mn-electrode potential in time makes possible quality control of the character of the resultant surface alloys. Five illustrations. Bibliography of 12 titles.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

USSR

IL'YUSHENKO, L., Candidate of Physical-Mathematical Sciences

"The Future of Thin Magnetic Films"

Minsk, Promyshlennost' Belorussii, No 9, 1970, pp 75-76

Abstract: This is a discussion of magnetic film as used in memory devices in electronic computers. Film is a strong rival of semiconductor memory devices; consequently, the study of the characteristics of magnetic film and the search for new materials for their manufacture are important. Research is being conducted on films of double and triple alloys based on ferrite metals: iron, nickel, cobalt combined with chromium, manganese, copper, molybdenum, as well as sulphur and phosphorus. An example of the usefulness of such an approach is the discovery of compounds with important characteristics for computer technology in the investigation of the triple iron-nickel-cobalt composition, work which was done by the senior scientist S. V. Sukhvalo under the direction of N. N. Sirota of the Belorussian Academy of Sciences. Magnetic film also plays an important part in the solution of radio and electronic equipment miniaturization problems. An important problem for the future is the automation of the process for obtaining film, a prospect in which the electrolytic method developed in the Belorussian Institute for Solid State Physics is ready to share.

T/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

UDC 669.017;538

USSR

IL'YUSHENKO, L. F.

"Electrolytically Deposited Magnetic Films"

Elektroliticheski Osazhdennyye Magnitnyye Plenki [English Version Above], Nauka i Tekhnika Press, 1972, 264 pages.

Translation of Annotation: This book presents problems of the methods of production and data on the properties of electrolytically deposited magnetic films. The dependence of the properties of films on their composition and deposition mode factors is studied in detail. Extensive experimental material is presented on the magnetic characteristics of films, both of the pure metals iron, nickel and cobalt and their mutual binary and ternary alloys, as well as alloys of the transition metals with other elements. Comparative data are presented on the properties of electrolytically deposited and vacuum films.

Results are discussed from studies in this area by domestic and foreign scientists. In particular, certain results of works performed by the author and his colleagues at the Institute of Solid State Physics and Semiconductors, Academy of Sciences, BSSR, are analyzed.

The book is designed for scientific and engineering workers involved in the production, investigation of properties and application of ferromagnetic films.

13 Tables; 140 Figures; 625 Biblio. Refs.

1/3

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8

UDC 669.017;538

USSR

IL'YUSHENKO, L. F., Elektroliticheski Osazhdennyye Magnitnyye Plenki, Nauka i Tekhnika Press, 1972, 264 pages.

TABLE OF CONTENTS

Foreword	5
Chapter I. Electrolytic Deposition of Magnetic Films	11
Electrochemical Reduction of Metals	11
Mechanism of Formation and Structure of Electrolytic Precipitates	19
Basic Regularities in Electrolytic Deposition of Magnetic Films	26
Chapter II. Crystalline Structure and Morphology of Surface Films	86
Phase Composition of Films	87
Film Growth Texture	95
Morphology of Film Surfaces	101
Chapter III. Internal Stresses in Electrolytically Deposited Films	112
Method of Measurement	113
Dependence of Residual Stresses on Film Composition	115
Dependence of Internal Stresses of Films on Precipitation Mode	117
Influence of Surface Active Agents on Internal Stresses in Films	122
Change in Internal Stresses as a Function of Film Thickness	124
Magnetostriction. Magnetoelastic Effects	128
Chapter IV. Magnetic Properties of Electrolytically Deposited Films	136

2/3

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110015-8"